

© Health Research and Educational Trust
DOI: 10.1111/1475-6773.12814
RESEARCH ARTICLE

Medicaid Expansion and Health Plan Quality in Medicaid Managed Care

Chima D. Ndumele , William L. Schpero, and Amal N. Trivedi

Objective. To assess the effect of the 2014 Medicaid expansion on Medicaid managed care plan quality.

Data Sources. Three composite measures of plan-level quality constructed from the Health Care Effectiveness Data and Information Set.

Study Setting. One hundred and sixty-three plans in 27 Medicaid expansion states and 100 plans in 14 nonexpansion states.

Study Design. Quasi-experimental difference-in-differences (DID) analysis, comparing quality before (2011–13) and after (2014–15) Medicaid expansion in states that elected to expand Medicaid eligibility and those that did not.

Principal Findings. Mean plan enrollment increased from 130,533 to 274,259 in expansion states and from 105,449 to 148,194 in nonexpansion states. The proportion of enrollees receiving recommended preventive care increased from 62.6 to 65.2 percent in expansion states and from 59.3 to 62.5 percent in nonexpansion states (adjusted DID: -0.7 percentage points [95% CI $-2.2, 0.7$]). The proportion of enrollees receiving recommended chronic disease care management increased from 65.4 to 66.0 percent in expansion states and from 62.5 to 63.1 percent in nonexpansion states (adjusted DID: 1.1 percentage points [95% CI $-0.5, 2.6$]). We observed similar patterns for the receipt of recommended maternity care.

Conclusions. Medicaid expansion increased enrollment in managed care plans, but it did not result in erosion of quality.

Key Words. Medicaid, managed care, quality

Under the Affordable Care Act (ACA), 31 states and the District of Columbia have accepted federal funds to expand their Medicaid programs to all citizens or qualifying residents with income less than 138 percent of the federal poverty level (FPL), while the remaining states have chosen not to expand at this time (Fausset and Goodnough 2016; Kaiser Family Foundation 2017). Proponents of the expansion point to evidence indicating that Medicaid coverage improves access to health services and protects enrollees from catastrophic health expenditures as compared with being uninsured (Finkelstein et al.

2012; Sommers, Baicker, and Epstein 2012; Ndumele et al. 2014). Critics have cited cross-sectional evidence of substandard access to selected services for Medicaid recipients and low reimbursement rates for Medicaid providers (Bisgaier and Rhodes 2011; Decker 2015). Early reports have found that Medicaid expansion has reduced the rate of uninsurance, decreased out-of-pocket spending, and improved access to care for low-income populations (Sommers et al. 2015; Wherry and Miller 2016). Little is known, however, about the effect of the expansion on publicly reported clinical performance in Medicaid health plans.

Medicaid managed care has become the dominant method of delivering and financing services for low-income populations, with estimates indicating that over 80 percent of Medicaid recipients are currently enrolled in managed care (Rosenbaum 2015). Moreover, the vast majority of states that have expanded their Medicaid programs anticipate placing most, if not all, of new recipients in managed care plans (Sommers et al. 2013). Federal regulations, promulgated in 2002 and updated in 2016, require states to develop comprehensive methods to assess the quality of care provided in managed care plans (Centers for Medicare & Medicaid Services 2016). The most commonly reported measures of quality are the Health Care Effectiveness Data and Information Set (HEDIS) indicators developed by the National Committee for Quality Assurance (NCQA), with approximately 70 percent of Medicaid plans publicly reporting on quality of care using HEDIS. Performance on these measures often carries high stakes for health plans, as Medicaid programs may incorporate measured quality into contracting decisions or financial incentives through pay-for-performance initiatives. Some policy observers have feared that expansion of Medicaid could erode quality if new entrants overburden plans' existing networks or lead plans to include suboptimal providers to increase network capacity. Nonetheless, we have little evidence regarding the baseline quality of care in the Medicaid managed care program or whether the expansion of Medicaid compromised the capacity of the program to deliver high-quality care.

We draw on prior literature to create a conceptual framework of how the federal Medicaid expansion could impact quality of care in the Medicaid

Address correspondence to Chima D. Ndumele, Ph.D., Department of Health Policy and Management, Yale School of Public Health, PO BOX 208034, New Haven, CT 06520; e-mail: chima.ndumele@yale.edu. William L. Schpero, M.P.H., is with the Department of Health Policy and Management, Yale School of Public Health, New Haven, CT. Amal N. Trivedi, M.D., M.P.H., is with the Providence VA Medical Center and the Department of Health Services Policy and Practice, Brown School of Public Health, Providence, RI.

program. Several studies have demonstrated reluctance among primary care physicians to accept patients with Medicaid coverage, leading to broad concerns about the capacity of the Medicaid program to accommodate a substantial increase in the number of beneficiaries (Cunningham and May 2006; Decker 2012). We hypothesize three primary mechanisms through which an expansion could impact plan quality in the Medicaid program. First, if the number of recipients covered by the program outpaces the number of providers available to cover those recipients, this could compromise access and the delivery of recommended care. Recent research has shown that initiatives to increase the primary care workforce in Medicaid have had attenuated and inconsistent effects, with the appointment availability for Medicaid recipients still lagging behind privately insured counterparts (Polsky et al. 2017). Prior work has also shown that expansions of public coverage, even when they result in increased program participation, often correspond with physicians spending less time with patients (Garthwaite 2012). It is possible, however, that Medicaid expansion could spur programmatic investments by payers and providers that improve quality, analogous at the federal level to the decision to pair Medicaid expansion with the implementation of the primary care fee bump, a programmatic investment by the government. Second, in an era of widespread use of managed care in Medicaid, health plans may be forced to expand their networks to increase capacity in response to expansion, leading to potential deficits in care due to inclusion of lower-quality providers. Corlette et al. found that preferred provider networks are formed, at least in part, to incentivize the use of high-performing physicians. Consequently, an expansion of physician networks from the core set of preferred providers could require an expansion to lower-quality physicians (Corlette, Volk, and Berenson 2014). Third, we hypothesize that an influx of millions of new patients could erode the quality of care received by existing patients in Medicaid managed care plans, including children and pregnant women (Joynt et al. 2013; Ndu-mele et al. 2014). Although prior studies have generally not observed negative spillover effects in access to care, the federal expansion of 2014 was larger in magnitude than those examined previously.

This study explores the effects of the recent state decisions to expand Medicaid on the quality reported by Medicaid managed care plans. Our study examines changes in preventive care, chronic disease care management, and maternity care for Medicaid managed care plans operating in states that expanded their Medicaid programs relative to concurrent changes in quality among plans in states that did not expand their Medicaid programs.

METHODS

Data Sources and Study Population

The primary data source for this project was the Medicaid HEDIS database maintained by the NCQA. HEDIS is a quality measurement tool used by more than 90 percent of health plans nationally and is the basis of performance assessment for health plan accreditation (National Committee for Quality Assurance 2013). While the submission of HEDIS data for Medicaid is not mandatory for all states, the large majority of Medicaid managed care beneficiaries were enrolled in organizations that submitted HEDIS data to the NCQA during our study period, ranging from 76 percent in 2011 to 88 percent in 2015 for measures included in our analysis. The data submitted from health plans are audited, and plan-level data are reported as an average of all individuals eligible for a quality measure. Although the results of audits are not publicly available, measures are flagged if they are based on an excessively small denominator (<30), if the rate is determined to be biased, or if a particular measure was unaudited. Our study only consisted of measures eligible to be audited that had no additional flags. Additional details on data collection processes and quality assurance are available elsewhere (National Committee for Quality Assurance 2016).

We linked plan-level data from the HEDIS dataset to health plans' federal regulatory filings (Centers for Medicare & Medicaid Services 2014). From the regulatory filings, we obtained information on the organizational structure, market share, and changes in Medicaid enrollment for each health plan. We subsequently linked these data to the Area Health Resources Files (AHRF) to obtain information on health care facilities in the states in which the health plans in our study operated, to the U.S. Census for information on state-level uninsurance, and to data from the Kaiser Family Foundation for information on Medicaid eligibility levels (Health Resources and Services Administration 2015; Kaiser Family Foundation 2015; U.S. Census Bureau 2015).

Our study included data for the years 2011 through 2015 (3 years prior and 2 years following the Medicaid expansion for most states). Our final sample included 163 unique health plans in 27 states that expanded their Medicaid programs and 100 plans in 14 states that did not expand their Medicaid programs (Table S1 in Appendix SA2). Overall, we evaluated 1,010 plan years over the course of the 5-year study period. Our study using secondary data analysis was deemed exempt from review by an institutional review board.

Study Variables

The primary dependent variable was a composite measure of quality of care, defined as the proportion of eligible Medicaid recipients who received recommended health services. We evaluated 11 quality metrics in three distinct areas, constructing a composite for each one: preventive care, chronic disease care management, and maternity care. We selected plan measures applicable to the expanded Medicaid population, which were consistent with previous evaluations of quality in the Medicaid program, and corresponded to recent Centers for Medicare and Medicaid Services (CMS) metrics to assess quality in Medicaid managed care (Landon et al. 2007; Centers for Medicare & Medicaid Services 2016). Detailed information on the specific quality metrics chosen, as well as the eligible populations for each measure, can be found in Table S2 in Appendix SA2. The primary independent variable was an interaction between whether a Medicaid managed care health plan operated in a state that expanded its Medicaid program and whether the time period was before or after the state implemented Medicaid expansion under the ACA (either in 2014 or 2015). To assess the comparability of expansion and nonexpansion states at baseline, we used a number of state-level indicators associated with access to care. Measures included the number of Medicaid beneficiaries, annual Medicaid enrollment growth, Medicaid eligibility levels, the number of federally qualified health centers, the annualized rate of uninsurance among nonelderly individuals, and the number of managed care plans.

Statistical Analysis

We employed a difference-in-differences approach to estimate the effect of the Medicaid expansion on quality of care, comparing Medicaid managed care plan quality before (2011–13) and after (2014–15) Medicaid expansion in states that elected to expand Medicaid eligibility as compared with those that did not. (Two states—Indiana and Pennsylvania—implemented Medicaid expansion in 2015 and thus were included in our analysis with only 1 year of postexpansion data.) This quasi-experimental design estimates the effect of a policy by examining the change in the outcome of interest in the group exposed to the policy relative to the change in a control group unaffected by the policy. This approach offers an advantage over standard pre-post designs by accounting for secular trends in the population that may be unrelated to the policy of interest. We used generalized linear models to

calculate difference-in-differences effects, weighted by each quality measure's eligible population, and adjusted for profit status, whether the plan only served Medicaid beneficiaries, and two time-varying measures: annual plan enrollment and annual market share. For one outcome where the eligible population was not reported (smoking cessation), as well as the overall composite measures, we weighted regression estimates by the annual population in each plan. Our models used state and year fixed effects and clustered all standard errors at the state level to account for the nonindependence of observations across years.

We assessed changes in quality for each of the 11 individual measures, as well as the composite quality scores. Because not all plans submitted quality data for each measure and year and the distribution of scores across measures varied considerably, we generated the composite scores by first standardizing the component measures to have a mean of zero and variance of one before averaging across the components and rescaling to reflect the raw composite mean and standard deviation. Less than 20 percent of plans did not report data for eight of the 11 of measures included in our study in 2015. Missing data were generally more prevalent for measures that required chart review (e.g., blood pressure control). Measures were generally not reported when plans did not have a large enough sample of eligible enrollees to produce a stable estimate. Notably, plans that submitted quality data over 2011–14 differed across several key dimensions relative to plans that did not submit quality data (Table S3 in Appendix SA2).

We conducted a number of sensitivity analyses to examine the robustness of our results. First, we conducted a formal test of the common trends assumption by comparing Medicaid managed care plan quality during the pre-expansion period (2011–13) in expansion and nonexpansion states (Table S4 in Appendix SA2). Second, we investigated the impact of the “woodwork” effect, in which increased awareness surrounding a public insurance expansion may prompt individuals who were previously eligible, but not enrolled, to acquire coverage (Sonier, Boudreaux, and Blewett 2013). To account for this, we used enrollment data to identify Medicaid managed care plans in nonexpansion states that experienced significantly larger relative increases in enrollment (greater than the 75th percentile) between 2013 and 2014. We repeated our primary analysis and excluded the “woodwork plans” from the control group to estimate the effect of Medicaid expansion in the absence of plans that saw significant increases in enrollment. We also estimated the “woodwork” effect, estimating the impact of plans operating in states with large increases in enrollment

(again, greater than the 75th percentile) relative to plans in other nonexpansion states.

Third, we conducted a stratified analysis of changes in quality among plans operating in states that had increases in coverage eligibility (defined as percent of the FPL) that were above and below the median expansion nationally. Fourth, we repeated our primary analysis with plan (rather than state) fixed effects (Colin Cameron and Miller 2015). Fifth, because the HEDIS data are reported for each plan annually, we conducted sensitivity analyses in which we indicated the two states that expanded eligibility midyear in 2014 (Michigan and New Hampshire) instead underwent expansion in 2015. We also conducted a separate analysis excluding the five states (and the District of Columbia) that partially expanded their Medicaid programs prior to 2014. Sixth, we repeated our primary analysis, limiting the sample to plans that reported HEDIS data in each year of the study period. Lastly, we limited our analysis to plans in the subset of states that mandated HEDIS reporting for relevant comprehensive Medicaid managed care plans in 2014 (Table S1 in Appendix SA2).

RESULTS

Characteristics of the Sample

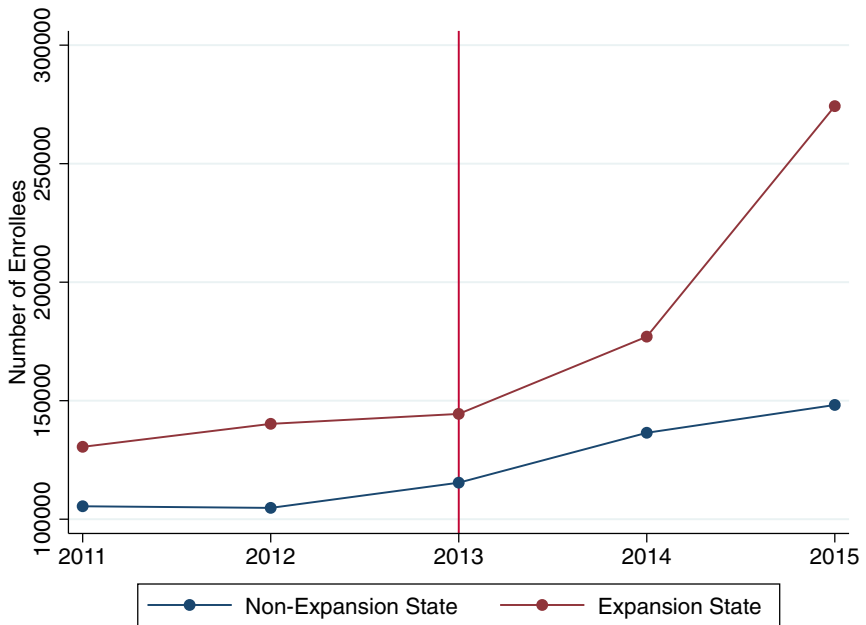
The primary study population included 263 managed care plans serving over 21.4 million enrollees in 2011 and 49.9 million enrollees by 2015. At baseline, the average enrollment in Medicaid managed care plans operating in expansion states was higher than enrollment in plans residing in nonexpansion states (Table 1). After the principal Medicaid expansion in 2014, plans in both expansion and nonexpansion states experienced substantial growth in the number of Medicaid recipients enrolled in Medicaid managed care plans. The increase in mean plan enrollment in expansion states (130,533 to 274,259) was more than two times higher than the increase in nonexpansion states (105,449 to 148,194) for plans in our sample (110 to 41 percent) (Figure 1). A higher proportion of plans in nonexpansion states exclusively insured Medicaid enrollees (55 vs. 46 percent 2011–13, on average), and plans in nonexpansion states were more likely to be for-profit (73 vs. 48 percent 2011–13, on average). States that participated in the Medicaid expansion had significantly higher income eligibility thresholds than nonexpansion states prior to the expansion and

Table 1: Characteristics of the Study Population

Variable	Nonexpansion States		Expansion States	
	2011–13	2014–15	2011–13	2014–15
<i>Plan Characteristics (HEDIS Sample)</i>				
Median beneficiaries (N(IQR))	63,067 (32,796–160,670)	103,322 (42,316–196,700)	92,965 (41,998–179,971)	137,701 (60,119–272,773)
Mean market share (%)	16.6	15.6	16.6	16.6
For-profit (%)	72.9	70.4	47.9	49.4
Medicaid-only (%)	55.2	47.4	46.4	41.3
<i>State Characteristics (HEDIS Sample)</i>				
Mean Medicaid beneficiaries (N)	1,156,374	1,344,293	1,277,681	1,763,874
Mean annual Medicaid enrollment growth (%)	0.8	7.8	1.9	19.9
Medicaid eligibility level (% of the FPL)	61.7	48.4	107.8	137.4
Mean federally qualified health centers (N)	115.5	141.0	117.8	142.7
Mean uninsurance rate (%)	15.6	12.2	12.1	7.9
Mean Medicaid managed care plans (N)	5.4	5.7	5.3	5.3

Notes. FPL indicates federal poverty level for parents of dependent children. HEDIS sample indicates set of Medicaid managed care plans for which Health Care Effectiveness Data and Information Set measures were available. IQR, interquartile range.

Figure 1: Average Medicaid Managed Care Plan Enrollment [Color figure can be viewed at wileyonlinelibrary.com]



Note. Analysis limited to plans with Health Care Effectiveness Data and Information Set measures available for 2014–15. Expansion states category includes states that expanded Medicaid eligibility in 2014 or 2015.

experienced more dramatic increases in the number of Medicaid beneficiaries.

Quality of Care in Medicaid Managed Care Plans

We examined quality of care across 11 distinct measures in the areas of preventive care, chronic disease care management, and maternity care (Table 2). The mean plan-level population eligible for evaluation ranged considerably for each metric: for example, just over 1,000 Medicaid managed care enrollees annually were eligible for follow-up treatment following a mental health-related hospitalization while approximately 18,500 enrollees were eligible for the adult BMI assessment measure. Prior to the expansion of Medicaid, performance scores varied significantly by measure, with just under half of enrollees (49 percent) in expansion states receiving timely follow-up treatment after a hospitalization for mental illness as compared

Table 2: Results of Difference-in-Differences Analysis

Outcome	Unadjusted Differences				Adjusted Differences	
	Nonexpansion States		Expansion States		Difference-in-Differences 2011–15	Avg. Eligible Population 2011–15
	2011–13	2014–15	2011–13	2014–15		
<i>Composite:</i>	59.28	62.47	62.56	65.23	−0.73 [−2.16,0.71]	—
<i>Preventive Care</i>						
Breast cancer screening	51.81	56.59	54.47	59.23	−1.65 [−3.83,0.53]	3,430
Chlamydia screening	48.84	47.97	55.45	54.44	0.12 [−1.80,2.04]	3,019
Adult BMI assessment	62.56	76.85	69.24	82.86	−0.00 [−4.06,4.06]	18,501
Smoking cessation	74.81	76.08	75.75	75.67	−0.29 [−2.28,1.69]	—
<i>Composite:</i>	62.45	63.11	65.38	66.02	1.06 [−0.52,2.64]	—
<i>Chronic Disease Care Management</i>						
Blood pressure control	54.58	55.78	62.32	61.20	1.01 [−1.26,3.28]	3,930
HbA1C testing	82.18	85.09	83.19	86.70	0.50 [−0.71,1.71]	3,793
HbA1C control	42.12	40.57	47.81	47.86	1.07 [−0.56,2.69]	3,953
Appropriate asthma med.	85.13	85.62	83.83	82.70	−0.80 [−1.94,0.34]	1,882
Mental illness follow-up	39.26	41.92	49.41	42.63	−2.89 [−10.12,4.35]	1,008
<i>Composite:</i>	71.19	72.04	74.43	71.01	−1.69 [−4.75,1.38]	—
<i>Maternity Care</i>						
Prenatal care	80.56	81.98	84.86	80.73	−1.08 [−4.08,1.92]	4,002
Postpartum care	61.78	62.21	64.52	61.23	−1.33 [−3.62,0.97]	3,968

Notes. Composite quality scores reflect average Z-score across relevant individual quality measures and rescaled to reflect raw composite mean and standard deviation. Difference-in-differences results reflect ordinary least-squares regression with state and year fixed effects and plan-level controls for total membership, market share, profit status, and whether the plan is Medicaid-only, weighted by the measure's eligible population (or total plan population for the composite and smoking measures). 95% confidence intervals reflecting robust standard errors clustered at the state level in brackets.

* $p < .05$, ** $p < .01$, *** $p < .001$.

with 39 percent of enrollees in nonexpansion states. Conversely, over 80 percent of enrollees were receiving recommended prenatal care (85 percent in expansion states and 81 percent in nonexpansion states). Performance rates were generally slightly lower among managed care plans operating in nonexpansion states.

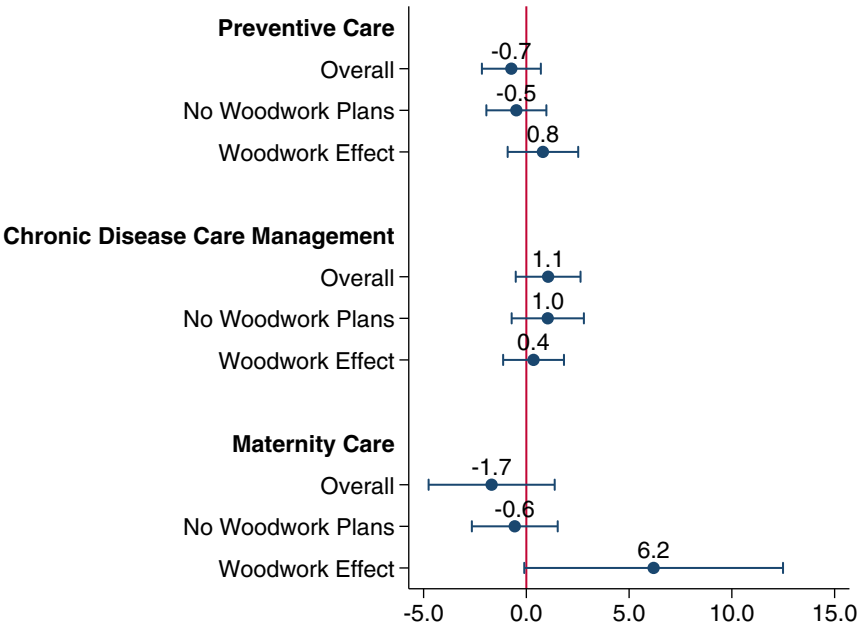
Effect of the Medicaid Expansion

Medicaid expansion was not associated with significant changes in quality of care for Medicaid managed plans. In the domain of preventive care, we observed approximately a 3-percentage-point (from 59 to 62 percent) increase in the proportion of individuals in nonexpansion states receiving recommended care before and after the expansion; this was equivalent in direction and magnitude to the change in quality (63 to 65 percent) we observed in the states that expanded coverage in the concurrent time period (adjusted DID: -0.7 percentage points [95% CI $-2.2, 0.7$]). We saw a very similar pattern for chronic disease care management (adjusted DID: 1.1 percentage points [95% CI $-0.5, 2.6$]) and maternity care (adjusted DID: -1.7 percentage points [95% CI $-4.8, 1.4$]) (Table 2). In addition to the composite measure, we observed a consistent noneffect of the expansion on each of the individual quality metrics, further indicating that the expansion had no measurable effect on the quality of care delivered in the Medicaid program.

Sensitivity Analyses

We examined the effect of expansion on quality for several subgroups to test the robustness of our primary findings. Medicaid expansion was not associated with significant changes in quality of care following exclusion of “woodwork plans” or among plans in nonexpansion states that saw larger increases in enrollment (the “woodwork effect”; Figure 2). Separate regressions limited to expansion states with small or progressively larger expansions given income as a percent of the FPL yielded similar point estimates as the primary analysis, with nonsignificant effects of the Medicaid expansion for the preventive and maternity care composite measures (Figure 3). A significant positive effect was evident, however, with the chronic disease care management composite for plans in states with larger expansions (adjusted DID: 1.6 percentage points [95% CI $0.0, 3.2$]). Our primary findings were also robust to use of plan fixed effects instead of state fixed effects, exclusion of the five states (and the District of Columbia) that expanded Medicaid eligibility in the years just prior to 2014, models that reassigned 2014 expansions in Michigan and New Hampshire to 2015, limiting our primary analysis to plans that reported HEDIS data in each year of the study period, and limiting the analysis to the subset of states that mandated HEDIS reporting in 2014 (Table S5 in Appendix SA2).

Figure 2: Results of Difference-in-Differences for Woodwork Subgroups
[Color figure can be viewed at wileyonlinelibrary.com]

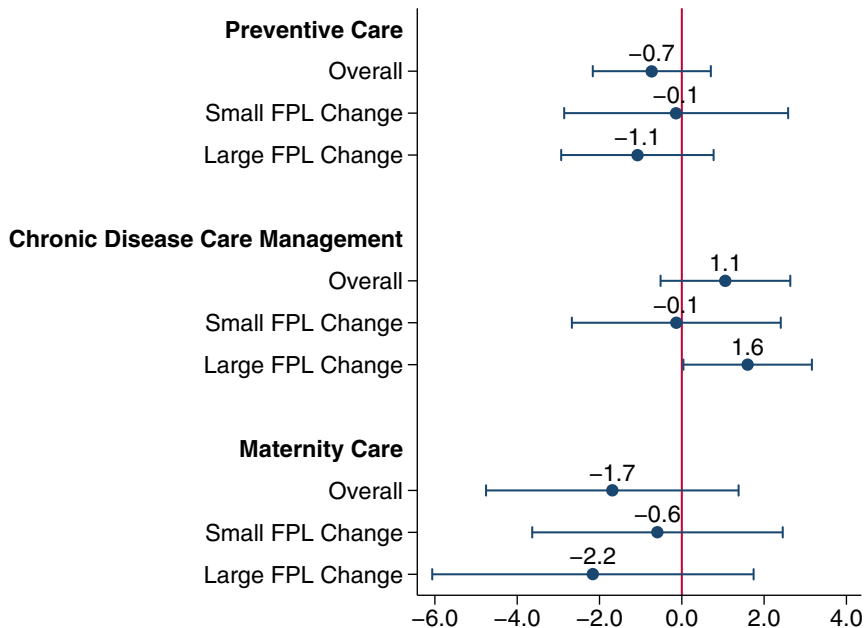


Note. Composite quality scores reflect average Z-score across relevant individual quality measures and rescaled to reflect raw composite mean and standard deviation. Adjusted results reflect ordinary least-squares regression with state and year fixed effects and plan-level controls for total membership, market share, profit status, and whether the plan is Medicaid-only, weighted by the measure’s eligible population (or total plan population for the composite and smoking measures). “Woodwork plans” are those in nonexpansion states that saw increases in enrollment (greater than the 75th percentile) between 2013 and 2014. “Woodwork effect” analysis estimates effect for “woodwork plans” relative to “nonwoodwork plans” in nonexpansion states.

DISCUSSION

We evaluated the effect of Medicaid expansion on the quality of care reported by Medicaid managed care plans. While previous studies have examined the effects of Medicaid expansion on access to physicians and health care services, our study is the first to investigate whether expansions initiated under the ACA have been associated with changes in Medicaid plans’ publicly reported quality. It is also one of the few studies to estimate the effects of expansion over multiple years. We find that the Medicaid expansion resulted in increases in Medicaid managed care enrollments in both expansion and nonexpansion

Figure 3: Results of Difference-in-Differences, Stratified by the Magnitude of Eligibility Increase [Color figure can be viewed at wileyonlinelibrary.com]



Note. Composite quality scores reflect average Z-score across relevant individual quality measures and rescaled to reflect raw composite mean and standard deviation. Adjusted results reflect ordinary least-squares regression with state and year fixed effects and plan-level controls for total membership, market share, profit status, and whether the plan is Medicaid-only, weighted by the measure's eligible population (or total plan population for the composite and smoking measures). Small and large changes in Medicaid eligibility defined using the median change in the 2013–15 federal poverty level (FPL) threshold among expansion states.

states, but it did not appear to have a significant effect on plans' reported quality of care delivered to Medicaid enrollees. This result was robust to different specifications, including models that excluded plans in nonexpansion states with far above average growth in enrollment. We found no evidence that the expansion of Medicaid eroded plan-reported performance rates in any of the domains we observed or among plans in states that experienced larger increases in the eligibility of managed care enrollees. Nonetheless, there remains considerable variation in the quality of care delivered to Medicaid managed care recipients.

Estimates from prior studies show that the vast majority of individuals newly covered under the ACA Medicaid expansion have enrolled in managed

care plans, necessitating investigation into plans' readiness to care for the expanding needs of a growing Medicaid population (McCahill and Van Leer 2012; Kaiser Family Foundation 2014). Our results provide reassuring evidence that overall plan quality has not been overwhelmed by the influx of newly insured beneficiaries. Rather, these plans have generally been able to absorb new enrollees without sacrificing care for existing enrollees, at least as measured by the 11 quality indicators in this study. These findings align with the results of recent investigations showing sufficient access to health services among new Medicaid enrollees (Sommers et al. 2015; Wherry and Miller 2016).

Our study yields several important insights into understanding the implications of Medicaid expansion on enrollment and measured quality in Medicaid managed care plans. First, many stakeholders have indicated that the expansion of Medicaid may not benefit low-income populations to the extent that it relegates vulnerable citizens to a comparatively low-performing insurance program (Pear 2011). Indeed, we find considerable variation and some areas for improvement in performance among the Medicaid managed care plans in our study. The observed level of performance, however, is comparable and, in some cases, greater than that reported in the Medicare Advantage population for similar measures (Ayanian et al. 2013; Levine, Linder, and Landon 2016). For example, a recent study using a national sample to assess the quality of outpatient care found that 75 percent of diabetics receive hemoglobin A1c checks; our study indicates that 85 and 87 percent of nonexpansion and expansion populations, respectively, received recommended checks (Levine, Linder, and Landon 2016). Moreover, our study does not support potential concerns that the new influx of enrollees would negatively impact measured quality of care, as many new enrollees might not be connected to a regular source of care and therefore enter their plan with uncontrolled chronic disease. With Medicaid playing a larger role in insuring Americans, it remains particularly important to identify and invest in strategies to improve the quality of the program. This is especially true as it relates to intermediate outcomes, an area where performance lagged behind other quality metrics.

The states that have not currently chosen to expand their Medicaid programs have on average more restrictive eligibility standards than do expansion states. Thus, some policy observers have noted that early positive results about Medicaid expansion may not extend to these states, which would require much greater investments in infrastructure than the currently expanded states. Our finding that effects of the expansion on quality are

similar among states irrespective of the relative magnitude of expansion is reassuring, as it suggests that even expansion states that substantially changed their eligibility policies following the ACA were able to do so without widespread negative effects for the broader population of Medicaid enrollees. Similarly, ongoing efforts to standardize performance reporting and create national rankings for Medicaid managed care plans have prompted concerns that plans in states that expanded their Medicaid programs may be penalized because they have had to measure and report quality among a newly eligible population that may have significant unmet health care needs. Our findings do not support this concern. Rather, we found modest and nonsignificant changes in reported care for plans in expansion states relative to the concurrent trend for plans in states that did not expand.

Our study has a few notable limitations. First, we only examined a subset of recommended quality metrics for Medicaid recipients. Nonetheless, we chose metrics that the NCQA and CMS have identified as important indicators of quality for Medicaid enrollees. Second, we only had data for the Medicaid managed care plans that submitted HEDIS data to the NCQA. While the characteristics of plans that submitted data differed in some cases from those that did not, we controlled for all observable variables in regression analyses. As it is possible that the plans submitting to the NCQA were disproportionately high-functioning, quality estimates may represent an upper bound of the quality of care delivered nationally. Detailed data on the number of recipients eligible for each measure allowed us to properly weight measures to reflect national estimates of quality. Third, our results only represent findings for 2 years following the Medicaid expansion. Therefore, the intermediate or long-term effects of the expansion remain unknown. Fourth, the effects observed for quality measured at the plan level are distinct from the experiences of individual Medicaid enrollees. Fifth, our results are less applicable to states that do not use managed care to finance and deliver care for Medicaid enrollees.

In the first two years following implementation of the ACA, there is little evidence that expansion of Medicaid eligibility has had any observable negative impact on Medicaid managed care plans' reported quality on widely used performance indicators. While Medicaid appears to afford enrollees coverage comparable to that of other government insurance types, there remain significant opportunities for improving quality within the program. Our study suggests that Medicaid expansion can increase coverage among low-income populations and enrollment in Medicaid managed care plans without eroding publicly reported clinical performance in these plans.

ACKNOWLEDGMENTS

Joint Acknowledgment/Disclosure Statement: This study was previously presented at the 2016 AcademyHealth Annual Research Meeting in Boston, MA. Mr. Schpero acknowledges support from Agency for Health Care Research and Quality to Yale University (Grant No. T32 HS017589), as well as from the National Institute on Aging to the National Bureau of Economic Research (Grant No. T32 AG000186). We would like to thank the National Committee for Quality Assurance for their assistance during the conduct of this research.

Disclosure: None.

Disclaimer: None.

REFERENCES

- Ayanian, J. Z., B. E. Landon, A. M. Zaslavsky, R. C. Saunders, L. G. Pawlson, and J. P. Newhouse. 2013. "Medicare Beneficiaries More Likely to Receive Appropriate Ambulatory Services in HMOs Than in Traditional Medicare." *Health Affairs* 32 (7): 1228–35.
- Bisgaier, J., and K. V. Rhodes. 2011. "Auditing Access to Specialty Care for Children with Public Insurance." *New England Journal of Medicine* 364 (24): 2324–33.
- Centers for Medicare & Medicaid Services. 2014. "2014 Medicaid Managed Care Enrollment Reports" [accessed on February 1, 2017]. Available at <https://www.medicaid.gov/medicaid-chip-program-information/by-topics/data-and-systems/medicaid-managed-care/downloads/2014-medicaid-managed-care-enrollment-report.pdf>
- Centers for Medicare & Medicaid Services. 2016. "Adult Health Care Quality Measures" [accessed on February 1, 2017]. Available at <https://www.medicaid.gov/medicaid-chip-program-information/by-topics/quality-of-care/adult-health-care-quality-measures.html>
- Colin Cameron, A., and D. L. Miller. 2015. "A Practitioner's Guide to Cluster-Robust Inference." *Journal of Human Resources* 50 (2): 317–72.
- Corlette, S., J. Volk, and R. A. Berenson. 2014. "Narrow Provider Networks in New Health Plans." Urban Institute [accessed on September 8, 2017]. Available at https://www.urban.org/research/publication/narrow-provider-networks-new-health-plans/view/full_report
- Cunningham, P., and J. May. 2006. *Medicaid Patients Increasingly Concentrated among Physicians*. Washington, DC: Center for Studying Health System Change.
- Decker, S. L. 2012. "In 2011 Nearly One-Third Of Physicians Said They Would Not Accept New Medicaid Patients, But Rising Fees May Help." *Health Affairs* 31 (8): 1673–9.
- . 2015. "Acceptance of New Medicaid Patients by Primary Care Physicians and Experiences with Physician Availability among Children on Medicaid or the Children's Health Insurance Program." *Health Services Research* 50 (5): 1508–27.

- Fausset, R., and A. Goodnough. 2016. "Louisiana's New Governor Signs an Order to Expand Medicaid." *New York Times*.
- Finkelstein, A., S. Taubman, B. Wright, M. Bernstein, J. Gruber, J. P. Newhouse, H. Allen, K. Baicker, and Oregon Health Study Group. 2012. "The Oregon Health Insurance Experiment: Evidence from the First Year." *The Quarterly Journal of Economics* 127 (3): 1057–106.
- Garthwaite, C. L. 2012. "The Doctor Might See You Now: The Supply Side Effects of Public Health Insurance Expansions." *American Economic Journal: Economic Policy* 4 (3): 190–215.
- Health Resources and Services Administration. 2015. "Area Health Resources File" [accessed on February 1, 2017]. Available at <http://ahrf.hrsa.gov/>
- Joynt, K. E., D. Chan, E. J. Orav, and A. K. Jha. 2013. "Insurance Expansion in Massachusetts Did Not Reduce Access among Previously Insured Medicare Patients." *Health Affairs* 32 (3): 571–8.
- Kaiser Family Foundation. 2014. "State Health Facts: Total Medicaid Managed Care Enrollment" [accessed on February 1, 2017]. Available at <http://kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/>
- Kaiser Family Foundation. 2015. "State Health Facts: Medicaid Income Eligibility Limits for Adults as a Percent of the Federal Poverty Level" [accessed on February 1, 2017]. Available at <http://kff.org/health-reform/state-indicator/medicaid-income-eligibility-limits-for-adults-as-a-percent-of-the-federal-poverty-level/?currentTimeframe=slide/current-status-of-the-medicare-expansion-decision/>
- Kaiser Family Foundation. 2017. "Current Status of State Medicaid Expansion Decisions" [accessed on February 1, 2017]. Available at <http://kff.org/health-reform/slide/current-status-of-the-medicare-expansion-decision/>
- Landon, B. E., E. C. Schneider, S.-L. T. Normand, S. H. Scholle, L. G. Pawlson, and A. M. Epstein. 2007. "Quality of Care in Medicaid Managed Care and Commercial Health Plans." *Journal of the American Medical Association* 298 (14): 1674–81.
- Levine, D. M., J. A. Linder, and B. E. Landon. 2016. "The Quality of Outpatient Care Delivered to Adults in the United States, 2002 to 2013." *Journal of the American Medical Association Internal Medicine* 176 (12): 1778–90.
- McCahill, J., and J. T. Van Leer. 2012. "The Challenges of Reform for Medicaid Managed Care." *Annals of Health Law* 21 (3): 541–59, i.
- National Committee for Quality Assurance. 2013. "NCQA's Health Insurance Plan Rankings Frequently Asked Questions" [accessed on February 1, 2017]. Available at https://www.ncqa.org/Portals/0/ReportCards/Rankings/HPR_FAQ_May_2013_Final.pdf
- National Committee for Quality Assurance. 2016. "HEDIS Data Submission" [accessed on February 1, 2017]. Available at <http://www.ncqa.org/hedis-quality-measurement/hedis-data-submission>
- Ndumele, C. D., V. Mor, S. Allen, J. F. Burgess, and A. N. Trivedi. 2014. "Effect of Expansions in State Medicaid Eligibility on Access to Care and the Use of Emergency Department Services for Adult Medicaid Enrollees." *Journal of the American Medical Association Internal Medicine* 174 (6): 920–6.
- Pear, R. 2011. "Cuts Leave Patients with Medicaid Cards, But No Specialist to See." *New York Times*.

- Polsky, D., M. Candon, B. Saloner, D. Wissoker, K. Hempstead, G. M. Kenney, and K. Rhodes. 2017. "Changes in Primary Care Access between 2012 and 2016 for New Patients with Medicaid and Private Coverage." *Journal of the American Medical Association Internal Medicine* 177 (4): 588.
- Rosenbaum, S. 2015. "Ushering in a New Era in Medicaid Managed Care." The Commonwealth Fund Blog [accessed on February 1, 2017]. Available at <http://www.commonwealthfund.org/publications/blog/2015/jul/ushering-in-a-new-era-in-medicaid>
- Sommers, B. D., K. Baicker, and A. M. Epstein. 2012. "Mortality and Access to Care Among Adults after State Medicaid Expansions." *New England Journal of Medicine* 367 (11): 1025–34.
- Sommers, B., S. Gordon, S. Somers, C. Ingram, and A. Epstein. 2013. "Medicaid On The Eve Of Expansion: A Survey of State Medicaid Officials about the ACA." Health Affairs Blog [accessed on February 1, 2017]. Available at <http://healthaffairs.org/blog/2013/12/30/medicaid-on-the-eve-of-expansion-a-survey-of-state-medicaid-officials-about-the-aca/>
- Sommers, B. D., M. Z. Gunja, K. Finegold, and T. Musco. 2015. "Changes in Self-Reported Insurance Coverage, Access to Care, and Health Under the Affordable Care Act." *Journal of the American Medical Association* 314 (4): 366–74.
- Sonier, J., M. H. Boudreaux, and L. A. Blewett. 2013. "Medicaid 'Welcome-Mat' Effect of Affordable Care Act Implementation Could Be Substantial." *Health Affairs* 32 (7): 1319–25.
- U.S. Census Bureau. 2015. "Health Insurance Statistics" [accessed on February 1, 2017]. Available at <http://www.census.gov/topics/health/health-insurance.html>
- Wherry, L. R., and S. Miller. 2016. "Early Coverage, Access, Utilization, and Health Effects Associated with the Affordable Care Act Medicaid Expansions." *Annals of Internal Medicine* 164 (12): 795.

SUPPORTING INFORMATION

Additional supporting information may be found online in the supporting information tab for this article:

Appendix SA1: Author Matrix.

Appendix SA2:

Table S1. States Included in Analysis.

Table S2. Quality Measures Included in Analysis.

Table S3. Characteristics of Plans With and Without Quality Data.

Table S4. Assessing the Commonality of Pre-Expansion Trends in Expansion and Non-Expansion States.

Table S5. Results for Sensitivity Analyses.